



# Pattern of Lower Gastrointestinal Diseases by Colonoscopy and Histopathological Examination: A Retrospective Study

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## ABSTRACT

Colonoscopy is the main investigation to detect the abnormalities in the colon and it is the main supportive measure for clinical diagnosis. Colonoscopic biopsy helps to get a definitive diagnosis of colonic diseases, which helps the clinician to give appropriate treatment.

**Aim of the Study:** To know the pattern of colonic diseases by colonoscopy and histopathological examination in Chennai Medical College Hospital & Research centre (CMCH&RC) Irungalur Thiruchirappalli District. a tertiary care hospital in rural part of south India.

**Materials and Methods:** A retrospective study of patients who had undergone colonoscopy from November 2014 to December 2017 at CMCH&RC was done. Data, from endoscopy register & from histopathology register during that period were collected and analysed.

**Results:** A total of 919 patients registered for colonoscopy. Male: Female ratio was 614:305. 913 patients tolerated the procedure. The most common indications were bleeding per rectum 208 cases (22.78%), clinical suspicion of irritable bowel syndrome 151 cases (16.54%), constipation 115 cases (12.60%), abdominal pain 62 cases (6.79%). The colonoscopic findings were, normal study in 47.65%, hemorrhoids in 17.42%, polyps in 8.65%, carcinoma in 6.68%, inflammatory bowel disease in 7.56% of case.

About 137 biopsy taken by colonoscopy during this period. The results were malignant lesions in 52, non specific colitis in 27, benign neoplastic lesions in 14, ulcerative colitis were 13 cases.

**Conclusion:** The commonest lesion by colonoscopy was hemorrhoids, Histopathological examination supports the colonoscopic study. Commonest lesion by histopathology was malignancy. The increasing incidence of malignancy in younger age group needs further prospective study.

**Key Words:** Colonoscopy, Histopathology, Carcinoma

## INTRODUCTION

The lower gastrointestinal tract extend from caecum to anal canal which is affected by both neoplastic and non neoplastic diseases. The various diseases affecting the colon are infections, inflammatory diseases, tuberculosis, polyps, colorectal tumours. There may be overlapping of the symptoms in these diseases, which sometimes find difficult to get the final diagnosis clinically<sup>1</sup>. The colonoscopy helps to locate the exact

site of lesion and the type of lesion, Colonic mucosal biopsy by colonoscopy helps to clinch correct diagnosis.

Colonoscopy and colonoscopic biopsy has radically changed the diagnosis and treatment of lower gastrointestinal tract diseases<sup>1</sup>. Diagnosing a polyp and removal by colonoscopy and histopathological examination has reduced many open surgical procedures<sup>2</sup>. In developing countries like India where tuberculosis and infective pathology are common,

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the incidence inflammatory bowel diseases are showing increasing trend. The histopathological examination of colonic mucosal biopsies by colonoscopy plays an important role in diagnosing inflammatory bowel disease<sup>3</sup> as well as early detection of colonic epithelial tumours<sup>4</sup>.

The aim of our study was to know lower gastrointestinal disease pattern by colonoscopy and also by histopathological examination in our area a rural part of south India.

## MATERIALS AND METHODS

It is a retrospective study of the available data from colonoscopy procedures performed by the medical gastroenterologist at Medical gastroenterology department at Chennai Medical College Hospital & Research centre (CMCH&RC) Irungalur Thiruchirapalli Dt. a tertiary care hospital in rural part of south India. Data from November 2014 to December 2017 was reviewed. Histopathological reports of the colonoscopic mucosal biopsies done during the period was also reviewed.

Patients with any of these symptoms of (Table.2)

Bleeding per rectum

Clinical suspicion of Irritable Bowel syndrome, carcinoma colon

Constipation

Chronic diarrhea

Abdominal pain

Anemia

Right iliac fossa pain and mass were included. Inpatients from wards as well as outpatients with any of these symptoms were examined by the medical gastroenterologist and colonoscopy was done selectively. Colonoscopy was done after proper bowel preparation. Colonoscopy was done without sedation. Biopsies were taken whenever there was suspicious lesion by colonoscopy. Proper preservation and transferring of biopsy specimen was done as per pathologist guidance. Biopsy specimens were analysed by pathologists and the reports were furnished.

### Data analysis includes

All the cases posted for colonoscopy, including the cases where the colonoscopy could not reach the caecum & the data reported in the histopathological examination register.

## RESULTS

Total of 919 patients were selected for colonoscopy. 913 patients underwent colonoscopy Table.2. The number of males: females were 614:299. The age and sex distribution of cases shown in Table 1.

The common indications were bleeding per rectum 208 cases (22.78%), Irritable bowel syndrome 151 cases (16.54%), constipation 115 cases (12.60%), chronic diarrhea 59 cases (6.46%), ileo caecal kochs 48 cases (5.26%), anal fissure 36 cases (3.94%), anemia 46 cases (5.04%), fistula in ano 38 cases (4.16%), abdominal pain 62 cases (6.79%), carcinoma colon 33 cases (3.61%), right iliac fossa pain and mass 12 cases (1.31%), surveillance scopy (which includes colonoscopy done for inflammatory bowel disease, melena, alcoholic liver disease, hepatomegaly, portal hypertension, multiple gastric polyps etc.) 105 cases (11.50%) (Table 2).

The colonoscopic findings were Normal study in 435 cases (47.65%), Hemorrhoids in 159 cases (17.42%), Carcinoma in 61 cases (6.68%), Inflammatory bowel disease (both ulcerative colitis & chrons disease) in 69 cases (7.56%), Polyp colon in 79 cases (8.65%), Kochs lesion in 20 cases (2.19%), Proctitis in 14 cases (1.53%), Diverticular disease in 16 cases (1.75%), Solitary rectal ulcer in 11 cases (1.20%), Non specific ulcers rectum in 4 cases (0.44%), Pancolitis in 4 cases (0.44%), others (caecal telengectasia, porta hypertensive colopathy, pseudo membranous colitis, extraneous compression etc.) 37 cases (4.05%), and incomplete study in 4 cases (0.44%) (Table 3).

Out of 79 cases of polyps 16 were diminutive polyps, 30 were sessile polyps, 33 were colonic polyps. Polypectomy done in 14 cases.

Colonoscopy showed ulcero proliferative lesion in 41 cases, circumferential lesion in 6 cases, ulcero infiltrative lesion in 3 cases, synchronous lesion in 3 cases, nodulo ulcerative lesion in 2 cases, ulcerative lesion in 2 cases, pigmented lesion in 1 case, polypoid lesion in 1 case, recto sigmoid proliferative lesion with multiple polyps in 1 case, verrucous lesion 1 case. 18 (29.50%) lesions were in proximal colon and 43 (70.50%) lesions were in distal colon (Table 4).

Total of 137 colonic biopsies taken and was analysed by the pathologist. The malignant lesion reported were in 52 biopsies (37.95%), non specific colitis in 27 (19.70%), benign neoplastic lesions in 14 (10.21%), ulcerative colitis in 13 (9.45%), tuberculous colitis in 9 (6.56%) chrons colitis in 4 (2.92%), acute infective colitis in 3 (2.18%), pseudo membranous colitis in 3 (2.18%), acute on chronic colitis in 2 (1.45%), adenoma with dysplasia in 1 (0.73%), chronic eosinophilic colitis in 1 (0.73%), chronic lymphocytic colitis in 1 (0.73%), ischemic colitis in 1 (0.73%), diverticulitis and diverticulitis with dysplasia each 1 (0.73% each), solitary rectal ulcer 1 (0.73%), normal rectal mucosa with surface ulceration in 1 (0.73%), reports not traceable in 2 (Table 5).

Of the 137 biopsy specimens 14 were polypectomy specimen, adenomatous polyp in 1 specimen, adenomatous polyp with dysplasia in 1 specimen, hyperplastic polyps in 4 specimens, inflammatory polyp in 3 specimens, hamartomatous

polyp in 2 specimens, juvenile polyp in 1 specimen, retention polyp in 1 specimen, 1 polyp was adeno carcinoma (Table 6).

Of 14 benign neoplastic lesions reported by histopathological examination, 13 specimens were from polypectomy and 1 specimen was mucosal biopsies from colonoscopically suspected malignant lesions where the report was tubular adenoma.

Of the 61 lesions suspected by colonoscopy, histopathological examination showed malignancy in 52 cases (adeno carcinoma in 46, melanoma in 2, gastro intestinal stromal tumour in 1, carcinoid tumour in 1, baso squamous in carcinoma 1, carcinoma in situ in 1 case) (Table 7). 5 lesions were benign (1 tubular adenoma, 1 adenoma with dysplasia, 2 chrons, 1 kochs). 4 results not traceable. The age and sex wise distribution of malignancy shown in Table 8.

## DISCUSSION

The patients with lower gastrointestinal disease may present with single or combination of symptoms like bleeding per rectum, anemia, abdominal pain, diarrhea, weight loss, constipation, altered bowel habits<sup>5</sup>. The commonest indication for colonoscopy in our study was bleeding per rectum-22.78% and this was the commonest indication for colonoscopy in the study by H N Dhinesh et al<sup>6</sup>(24.8%) and Md Abu Sayeed et al<sup>7</sup>(32.53%).

The hemorrhoids (17.42%) was the most common colonoscopic finding in our study and was similar to the study by Raju H. Badiger et al<sup>8</sup>(48.4%). In our study the polyps constitute to 8.65% of total cases which was similar to the study by Md Abu Sayeed et al<sup>7</sup> who reported as 8.73%.

The colonoscopic suspicion of malignancy in our study was 6.68% which was almost equal to the study by Dhinesh et al<sup>6</sup>(7.06%). The most common location of carcinoma was distal colon 70.50% in our study which was similar to the study by Musthafa et al<sup>9</sup> who reported as 74%. The mean age of presentation of malignancy was 69 years in the western population<sup>10</sup>. Deo et al<sup>11</sup> reported mean age at presentation was 45.3 years. In our study the mean age at presentation was 55.13 years.

In our study the out of 135 histopathological reports, non neoplastic lesions were 51.84% and neoplastic lesions were 48.16%, which is similar to the study by Abilash et al<sup>1</sup> where the non neoplastic lesion (60.8%) was more than neoplastic lesion.

In non neoplastic lesions non specific colitis constitute to 19.7% in our study which was low compared to the studies by Abilash et al<sup>1</sup> Abduikader<sup>12</sup>, which was 52.6% & 46.7% respectively. The chronic non specific colitis may represent the early stage of inflammatory diseases like ulcerative colitis and chrons disease.<sup>13,14</sup>

Ulcerative colitis was reported in 9.50% of cases in our study, which was less compared to the study by Abduikader<sup>12</sup> Saira Bashir et al<sup>15</sup>, whose reports were 11.8%, 31.7% respectively.

Tuberculosis was seen in 6.56% of the cases which was slightly high compared to the studies by Ritesh Sulegaon et al<sup>16</sup>, Pavani Manthini et al<sup>17</sup> whose findings were 5.26% & 4.9%.

In our study malignancies were seen in 37.95% ( 52 cases) of biopsies and 88.46% (46 cases) were adenocarcinomas among them. Out of these adenocarcinomas, 54.34% (25 cases) were well differentiated, 34.78% (16cases) were moderately differentiated, 4.34% (2 cases) were poorly differentiated, 6.52% (3 cases) were mucinous adenocarcinomas. In the study by Chaitanya et al<sup>18</sup> the predominant finding was well diffentiated adenocarcinoma 63.16%, moderately differentiated was 13.16%, poorly differentiated was 2.63%, mucinous adenocarcinomas was 15.79%. He reported 2.63% as neuro endocrine tumour which was little high compared to our study of 1.92%,

Rectal malignant melanoma account for 0.2% to 0.3% of all malignant melanomas, 0.1 to 4.6% of malignant tumours of rectum and anus<sup>19</sup>. In our study 2 cases (3.8%) of melanoma rectum reported and it was presented in the age group of 50 to 60. Carcinoma in situ was identified in IBD with pseudopolyps. The GIST & carcinoid tumour was reported in the age group of 21-30. 40.38% of malignant lesions were below 50 years which was high compared to 36% reported by Rajbhandari et al<sup>14</sup>. Exposure to chemicals used in agriculture for growing rice and soya beans are one of the major environmental carcinogen responsible for colorectal carcinoma among adolescents<sup>20</sup>. Since our study was retrospective, which lacks the environmental factors, food habits, familial history, it needs further prospective study to find out the increased incidence below 50 and also the causative factors of malignancy.

The incidence of malignancy in sessile polyps and diminutive polyp and polyp less than 1cm is less. Polypectomy was not done routinely in all cases in our study. But follow up colonoscopy could pick up malignant changes if occurs.

## CONCLUSION

This retrospective colonoscopic study helped us to know the pattern of lower gastrointestinal diseases in our area. Though the normal study was high, colonoscopy helped to pick up malignant lesions in younger age group. There was good correlation between colonoscopic findings and histopathological findings in malignancy. Histopathological examinations detected benign features in malignant lesion suspected by colonoscopy, thereby helps the clinician to avoid major

surgeries. It needs further prospective study to evaluate the factors that causes malignancy in our area.

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## Ethical Clearance

Ethical clearance for the use of clinical data and preparation of this Research paper has been obtained from the Management of CMCH&RC, Irungalur, Tiruchirappalli Dt. Tamilnadu.

## Informed Consent

Not applicable.

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## Conflict of Interest

There is no conflict of interest in the preparation and submission of this Research Paper.

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**Table 1: Age and Sex Distribution**

Age Group	Male	Female	Total
11 to 20	30	12	42
21 to 30	94	45	139
31 to 40	110	71	181
41 to 50	109	72	181
51 to 60	137	55	192
61 to 70	101	38	139
71 to 80	33	12	45
			0
Total	614	305	919

**Table 2: Colonoscopic Indications.**

Symptoms	Number of Cases	Ratio
Bleeding P/R	208	22.78%
IBS	151	16.54%
Constipation	115	12.60%
Chronic Diarrhoea	59	6.46%
Kochs Ileo Caecal	48	5.26%
Anal Fissure	36	3.94%
Anemia	46	5.04%
Fistula in Ano	38	4.16%
Abdominal Pain	62	6.79%
Carcinoma Colon	33	3.61%
Rif Pain/RIF Mass	12	1.31%
Surveillance Scopy	105	11.50%
Total	913	100.00%

**Table 3: Colonoscopic Findings**

	Number of Cases	
	Nos	%ge
Normal Study	435	47.65%
Haemorrhoids	159	17.42%
Carcinoma	61	6.68%
IBD*	69	7.56%
Polyp Colon	79	8.65%
Kochs Lesion	20	2.19%
Proctitis	14	1.53%
Diverticular Disease	16	1.75%
Solitary Rectal Ulcer	11	1.20%
Non Specific Ulcers Rectum	4	0.44%
Pan Colitis	4	0.44%
Others	37	4.05%
Incomplete Study	4	0.44%
Total	913	100.00%

\*Inflammatory Bowel Disease (Ulcerative Colitis &amp; Chrons)

**Table 4: Site of Suspected Malignant Lesion by Colonoscopy.**

Proximal		
Caecum	1	
Ascending Colon	6	
Hepatic Flexure	10	
Transverse Colon	1	
Total	18	29.50%
Distal		
Descending Colon	3	
Sigmoid Colon	10	
Recto Sigmoid	10	
Rectum	12	
A-R Region	3	
Anal Region	1	
Synchronous Growth	3	
R-S Growth with Multiple Polyps	1	
Total	43	70.50%
Grand Total	61	

**Table 5: Histo Pathological Reports**

Malignant Lesions	52	37.95%
Benign Polyps	14	10.21%
Non Specific Colitis	27	19.70%
Ulcerative Colitis	13	9.45%
Tuberculous Colitis	9	6.56%
Acute Infective Colitis	3	2.18%
Pseudo Membranous Colitis	3	2.18%
Acute on Chronic Colitis	2	1.45%
Adenoma with Dysplasia	1	0.73%
Chronic Eosinophilic Colitis	1	0.73%
Chronic Lymphocytic Colitis	1	0.73%
Ischemic Colitis	1	0.73%
Chrons Colitis	4	2.92%
Diverticulitis	1	0.73%
Diverticulitis with Dysplasia	1	0.73%
Solitary Rectal Ulcer	1	0.73%
Normal Rectal Mucosa	1	0.73%
Report not Traceable	2	1.46%
		0.00%
Total	137	100.00%

**Table 6: Polyps**

<b>By Colonoscopy</b>	
Polyps	33
Sessile Polyps	30
Diminutive Polyp	16
Total	79
<b>Benign Neoplasms by Histo Pathological Examination</b>	
Adenomatous Polyp	1
Adenomatous Polyp with Dysplasia	1
Hamman-Rich polyp	2
Hyper Plastic Polyp with Eosinophilic Colitis	1
Hyper Plastic Polyp with Adenomatous Changes	1
Hyper Plastic Polyps	2
Inflammatory Polyps	3
Juvenile Polyp	1
Retention Polyp	1
Tubular Adenoma	1
<b>Total</b>	<b>14</b>

**Table 7: Malignant Lesions by Histopathological Examination**

Adeno -Carcinoma	46
Well Differentiated	25
Moderately Differentiated	16
Poorly Differentiated	2
Mucinous	3
Melanoma	2
GIST*	1
Carcinoid Tumour	1
Basal Squamous Carcinoma	1
Carcinoma In Situ	1
<b>Total</b>	<b>52</b>

**Table 8: Age & Sex Distribution of Malignant Cases by Hpe.**

	<b>Male</b>		<b>Female</b>	
21 to 30	2	1	3	5.77%
31 to 40	3	1	4	7.69%
41 to 50	9	5	14	26.92%
51 to 60	10	5	15	28.85%
61 to 70	6	3	9	17.31%
71 & Above	6	1	7	13.46%
<b>Total (52)</b>	<b>36</b>	<b>16</b>		